Henrik Müller*

From Dollarisation to Euroisation

The Future of the Euro as an International Substitution Currency

In the past the dollar has been so dominant as an international currency that the term 'dollarisation' has become a synonym for currency substitution, i.e. the voluntary use of a foreign currency instead of the respective country's own legal tender. This article addresses the question as to whether the euro may be expected to partly replace the US currency in this function, focusing on the former's use as a substitution currency in countries on the periphery of the euro zone. Some policy conclusions are drawn for both the 'euroised' economies and Euroland.

The phenomenon of widespread dollarisation displays impressively the US currency's supreme role in the international monetary system. Throughout the world private households, firms, and governments use the dollar as a medium for transactions, a unit of account and a store of value. In Latin America, but also in Asia, Africa, and many countries of the former Comecon the US currency has partly replaced the home currencies. True, there are other currencies that have played an international role in the past, especially the deutschmark. But the dominance of the dollar is so overwhelming that the term dollarisation has become a synonym for the process of currency substitution, that is the voluntary use of a foreign currency instead of the respective home country's legal tender.[1]

Now the launch of European Monetary Union (EMU) has put some competitive pressure on the dollar: the euro has the potential to become a second international currency. In international trade, financial markets and the official reserves of central banks the new money may catch up with the dollar in terms of 'market share'.[2]

Is the euro also capable of partly replacing the dollar as a substitution currency? This question has only rarely been addressed systematically. This article attempts to contribute to the discussion on the evolving international role of the single European currency. It focuses on the future use of the euro as a substitution currency in the countries on the periphery of the euro zone, particularly on the Central and Eastern European Countries (CEECs).

Measuring Dollarisation

Currency substitution is a widespread occurrence, notably in developing countries. Households and firms hoard foreign bills and coins. They prefer bank deposits and credits to be denominated in foreign currency, or they choose to hold their bank deposits abroad. In the extreme case of outright displacement of the home currency even price tags in retail stores carry foreign currency prices. At present, Argentina, Bolivia, Peru, Uruguay, the countries of the Balkans and the former Soviet Union are frequently referred to as highly dollarised economies.

While there is no doubt that currency substitution is a feature of today's open world economic system, it is difficult to calculate realistic degrees of currency

* Economic Journalist, Hamburg, Germany.

[1] There are other currencies that enjoy some regional significance as substitution currencies. For instance a 30 per cent share of Hong Kong dollar bills is estimated to circulate in the People's Republic of China. See Markus Taube: Währungssubstitution in Südchina: Monetäre Aspekte der Hongkong-chinesischen Wirtschaftsintegration, in: Asien (January 1996) 58, pp. 40-49.

[2] For an overview see for example Norbert Funke, Mike Kennedy: International Implications of European Economic and Monetary Union, OECD Economics Department Working Papers No. 174 (1997); and Philipp Hartmann: The Future of the Euro as an International Currency. A Transactions Perspective, LSE Financial Markets Group Special Paper No. 91 (1996).

substitution. The reason for this is a severe lack of data. Many central banks report the overall volume of foreign currency deposits (FCDs) but usually leave open in which particular currency these deposits are denominated. In most cases it is therefore unknown to what degree currencies other than the dollar contribute to dollarisation. Differing national regulations on the use of foreign currency pose an additional problem for quantification.

Figures regarding bank deposits can be obtained from banks' balance sheets but they show only part of the picture. Only rough estimates exist concerning the co-circulation of cash. Even central banks that issue internationally popular currencies, such as the US Federal Reserve and the Deutsche Bundesbank, have to rely on rather vague guesses when it comes to quantifying the amount of cash that is circulating abroad.[3] Several studies find that the actual share of circulation abroad can be large. Fed estimates show a steady rise over the last four decades. By the mid-nineties two-thirds of the stock of dollar bills are said to be in use outside of the USA, adding up to a value of US dollar 250 to 300 billions.[4] These figures dwarf the international diffusion of the deutschmark which used to be the second most important international currency before the launch of EMU: the Bundesbank estimates that by the end of 1994 30 to 40 per cent of the stock of deutschmark bills were used abroad, amounting to a value of 65 to 90 billion deutschmarks.[5] On the question, in which countries these bills are located, only anecdotal evidence is available.

Because of these difficulties of measurement most studies on dollarisation use rather rough clues. Usually the amount of FCD divided by the money stock (defined either as M1, M2 or M3) plus FCD serves as a proxy for the degree of dollarisation. Of course these results are conservative estimates since foreign cash and deposits held abroad are not accounted for. The actual relevancy of the parallel use of foreign currencies in individual dollarised countries should in most cases be a lot greater than the figures show.

Causes of Currency Substitution

Currency substitution is the outcome of the process of competition. The dollar and other internationally accepted hard currencies compete with the home country's legal tender. Households and firms abandon the latter if the former promises to fulfil the requirements as a medium for transactions, a store of value and a unit of account better.

There are a couple of major reasons for abandoning the home currency:

☐ *Inflation.* High and volatile rates of inflation are the chief reason for currency substitution. As the home currency fails to meet the requirements of efficient money, citizens turn to an international alternative. Not only the present rate of inflation is important, but also private agents' expectations of future inflation. If they have experienced high and highly volatile rates in the past, they are likely to lose faith in the stability of the home currency.[6] As a store of value the home currency becomes unattractive if inflation causes the real interest rates of assets denominated in home currency to fall substantially below the rates of assets denominated in foreign currency. Frequently this happens in countries where the financial sector is highly regulated. If government intervention hinders nominal interest rates from rising proportionally to inflation rates, real interest rates will fall, possibly below zero. Lasting real interest rate differentials present a permanent incentive to give up the home currency and substitute it for an international money.[7]

☐ *Devaluations.* Monetary instability not only means that inflation rates are high, but is also mirrored in frequent devaluations vis-à-vis foreign currencies. Again, both the transactions and the store-of-value functions of money are affected: if consumers

[3] For an overview on different measurement concepts for co-circulation see Russel Krueger, Jiming Ha: Measurement of Co-Circulation of Currencies, International Monetary Fund Working Paper 1995,34.

[4] See Theodore E. Allison: Testimony before the Subcommittee on Domestic and International Monetary Policy, Committee on Banking and Financial Services, U.S. House of Representatives, 8 October 1998.

[5] See Deutsche Bundesbank: Der DM-Bargeldumlauf im Ausland, in: Monatsbericht Juli 1995, pp. 67-73.

[6] Kamin and Ericsson find an empirical correlation between the maximum inflation rate in the past and the present degree of dollarisation. See S. B. Kamin, N. R. Ericsson: Dollarization in Argentina, International Finance Discussion Paper, Board of Governors of the Federal Reserve System, July 1993. Ize and Levy-Yeyati stress the uncertainty for money demand that is caused by strong fluctuations in the inflation rate and the exchange rate. See Alain Ize, Eduardo Levy-Yeyati: Dollarization of Financial Intermediation: Causes and Policy Implications, International Monetary Fund Working Paper 1998, 28.

[7] That the real interest rate differential caused by government regulation is an important cause for dollarisation in Latin America is suggested in Miguel A. Savastano: Dollarization in Latin America: Recent Evidence and Some Policy Issues, International Monetary Fund Working Paper 1996,4. For similar results concerning some CEECs during the transition to market economies see Ratna Sahay, Carlos A. Végh: Dollarization in Transition Economies: Evidence and Policy Implications, International Monetary Fund Working Paper 1995, 96.

anticipate a devaluation of the home currency, they expect prices for imported goods to rise. Importers fear that the value of their foreign debt burden will grow. At the same time prices for assets in the home currency deteriorate while prices for credits and loans denominated in foreign currency rise. If economic agents expect a substantial devaluation of the home currency, they will try to reduce their risks by switching to a foreign currency.

☐ *Credibility of Institutions.* Since expectations about future monetary stability drive the dynamics of currency substitution to a considerable extent, the quality of national economic policy, notably monetary and fiscal policy, plays a crucial role. The credibility of national institutions is of utmost importance in this context. Argentina is an example for how hard it is to regain trust: throughout the eighties the Latin American country experienced double-digit inflation rates. Finally, in 1989/90 a currency crisis shook the economy, with inflation shooting up to close to 600 per cent. Even though the government installed a currency board regime in 1991 that tied the peso to the US dollar and that has worked successfully since, the degree of dollarisation is still as high as 70 per cent.[8]

Besides the quality of monetary and fiscal policies, government regulations play an important role. For example, governments have the power to convert FCDs on an obligatory basis or even confiscate them. If economic agents anticipate such actions, they react by switching to foreign cash or by transferring their fortunes abroad (capital flight). According to Alan Greenspan, the President of the Fed, it is especially the long-term credibility of US institutions that explains the widespread popularity of US dollar bills: 'While Dollar currency circulating in such a [poorly performing] country is credibly backed by the U.S. government, any domestic dollar deposits or other claims are subject to the whim of the domestic government that could with the stroke of a pen abolish their legal status.'[9] (In such countries there still is a risk involved in holding dollar bills, especially because of counterfeiting.)

Additionally, influences from abroad are apt to weaken confidence in the proper functioning of institutions. One example is Macedonia, which felt the negative impact of the increasing gravity of the Kosovo crisis. Even though the country had reached monetary stability in 1998 with inflation down to just 0.6 per cent on an annual basis, large shifts in private household portfolios to foreign currency assets were observed. In the course of the year the value of time deposits denominated in foreign currency rose by 55.8 per cent.[10]

☐ *Financial Markets.* Economies with poorly developed, narrow, illiquid financial markets pose a particular problem to importers: they run the risk of not being able to exchange the amount of home currency needed at a given point in time. So they possibly fail to meet their liabilities towards foreign trading partners. Also, financial instruments to hedge exchange-rate fluctuations are not available. Thus importing firms build up a safety cushion: either of the currency in which most of the respective country's foreign trade is invoiced or of an internationally accepted vehicle currency that can be exchanged quickly at low cost into any other national money. So far, only the dollar has been able to perform the latter function.[11]

☐ *Availability of foreign currency.* The degree of dollarisation also depends on the extent of availability of foreign currency to the citizens of the country in question. As long as the home currency is not freely convertible, access to foreign currency is limited. Besides export revenues that lead to an inflow of foreign currency, migration can also become an important factor. In Egypt – a then strongly protected economy – for instance, dollarisation exploded in the mid-seventies. Many Egyptian workers went to work in the newly enriched Gulf countries that profited from the dramatic rise in oil prices after 1973, and were paid in US dollars, which they took home.[12] In Lithuania dollarisation resulted to a considerable extent from private transfer payments: exiled Lithuanians living in the USA – a group the size of one third of today's population of the Baltic republic – supported their relatives in the home country.[13] Tourism also brings in cash and is thus an important channel for foreign currency in otherwise closed and regulated economies.

[8] For country comparisons concerning Latin America see for instance Alain Ize, Eduardo Levy-Yeyati, op. cit., and Miguel A. Savastano, op. cit.

[9] See Alan Greenspan: The Structure of the International Financial System, lecture delivered at the annual meeting of the Securities Industry Association, Boca Raton, Florida, 5 November 1998.

[10] See National Bank of Macedonia, Monthly Report December 1998, p. 19.

[11] In the eighties and nineties the deutschmark, too, played a certain role as a vehicle currency in Western Europe. Now the euro has the potential to catch up with the dollar. See Philipp Hartmann, op. cit.

[12] See N. Nureldin Hussain: Financial Liberalisation, Currency Substitution, and Investment: The Case of Egypt, in: African Review of Money, Finance and Banking, 1997, 1-2, pp. 57-83.

Dollarisation Dynamics

The dynamics of dollarisation follow a characteristic path: at the beginning, there is a phase of economic and political instability. This is followed by a stabilisation programme that includes the gradual liberalisation of foreign currency transactions. In the course of this, an apparent paradox often arises: although the central bank manages to bring down the inflation rate and to stabilise the exchange rate, the degree of dollarisation rises quickly. The reason for this is that due to liberalisation all of a sudden FCD are available to firms and citizens. So they trade part of their stock of foreign cash for FCDs and retransfer flight capital from abroad. But they still prefer assets denominated in foreign currency since they do not trust the new stability of the home currency. This is a critical point in time. Often it is impossible to reverse the process of dollarisation later on. This effect is common among Latin American countries. The Bolivian government for example allowed FCDs in 1985 in order to attract flight capital from abroad. Just one year later, by the end of 1986, 60 per cent of bank deposits were dollarised. This figure rose to 95 per cent by the mid-nineties.[14]

Even countries with sound fundamentals experience a lasting preference for foreign currency – dollarisation becomes permanent, a phenomenon referred to as 'hysteresis'. There are several explanations for this. First, hysteresis is observed when the liberalisation of foreign exchange transactions is not accompanied by a liberalisation of the financial sector. As a result, real interest rate differentials vis-à-vis foreign currency denominated assets remain permanent. There is thus no incentive to return to the home currency. This has been the case in Latin America and in some CEECs, especially in Russia and Romania.[15]

The second explanation for hysteresis is 'network externalities'. This concept refers to positive spillovers among the users of the same currency. In telecommunications if there is only one household that possesses a telephone, the apparatus is completely useless. But if there are millions of other households that have phones, then a standard evolves that greatly enhances the welfare of individual phone owners. Similarly, market-driven standardisation processes can be observed in the monetary sphere: the more people use the dollar and accept it as a means of payment, the lower the transaction costs will be compared to those of transactions performed in the home currency.[16]

A third explanation for hysteresis is rooted in portfolio theory. If the expected volatility of the inflation rate is higher than the expected volatility of the real exchange rate, then assets in the home currency are subject to higher risk than assets denominated in foreign currency. A risk-averse individual can be expected to reallocate his/her portfolio, giving a higher weight to foreign currency assets since in this way he/she can lower the overall portfolio risk. Thus permanent currency substitution is predicted.[17]

Comparing the dynamics of dollarisation in Latin America with the respective developments in the CEECs one is surprised how little dollarised many of these latter countries have become by the end of the nineties. After a peak in 1992/93, the degree of currency substitution began to sink in many countries.[18] Widespread hysteresis did not occur. In some countries even a process of de-dollarisation took place, notably in Poland, Hungary, the Czech and the Slovak Republics, Estonia and Latvia. The reason for this is the greater institutional stability that provided relatively low inflation rates even in times of radical social transition (Hungary, Czech and Slovak Republics) or the rapid decline of inflation after a short peak that adjusted the monetary overhang inherited from the socialist period (Poland,[19] the Baltic States).

Still, there is a second group of CEECs – the countries in the Balkans and the CIS – that experienced a series of currency and financial crises. Reforms were conducted slowly and weakly. The degree of currency

[13] See Stasys Kropas, Member of the Board, Bank of Lithuania: Changing Role of the Euro as Seen from the Bank of Lithuania, lecture delivered to the European Banking & Financial Forum 'The Next Millennium and the Euro – the Dawn of a European Economic Renaissance?' in the section 'EU Expansion & the Euro', Prague, 23-25 March 1999.

[14] This includes dollar-indexed Bolivianos deposits. See Tobias Roy: Dollarization and Deformation of the Financial Sector in Bolivia, Diskussionsbeiträge des Fachbereichs Wirtschaftswissenschaft der Freien Universität Berlin, 1998,20.

[15] See Ratna Sahay, Carlos A. Végh, op. cit.

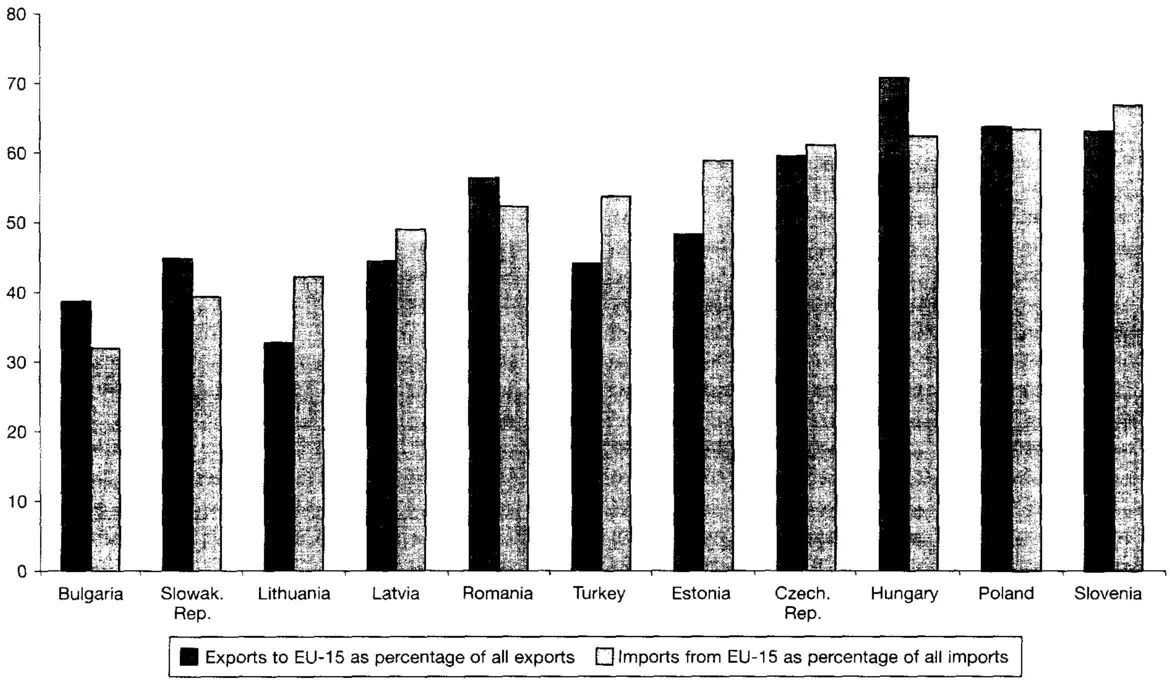
[16] See Bettina Peiers, Jeffrey M. Wrase: Dollarization Hysteresis and Network Externalities: Theory and Evidence from an Informal Bolivian Credit Market, Working Papers Economic Research Division, Federal Reserve Bank of Philadelphia, 1997, 21.

[17] See Alain Ize, Eduardo Levy-Yeyati, op. cit.

[18] See Ratna Sahay, Carlos A. Végh, op. cit.

[19] Since 1990 Poland followed a big bang strategy. A broad programme of reforms started, including the liberalisation of prices, foreign trade, and the financial sector as well as the convertibility of the zloty. Inflation reached a peak in 1990 at 586 per cent, resulting in a large rise in currency substitution. See Bas van Aarle: Currency Substitution and Currency Controls: the Polish 'Big Bang' of 1990, in: Transition in Eastern Europe, Konjunkturpolitik, Beiheft 45, Berlin 1997, pp. 71-92.

Figure 1
Trade Links with the EU



Source: European Commission: Reports on Progress towards Accession by Each of the Candidate Countries, Brussels, November 4, 1998.

substitution approximately followed a pattern: in countries with weak institutions dollarisation became permanent,[20] in countries with credible institutions it declined again.

The Outlook for the Euro

In the future, the euro is likely to compete with the US dollar as an international substitution currency. Especially the countries on Euroland's periphery are candidates for euroisation. This process is most likely to occur in the CEECs and in Turkey. For these economies the European Union (EU-15) is by far the most important trading partner (cf. Figure 1). Holding the single European currency instead of the respective home currency or the dollar would be beneficial for firms and households in these countries for two reasons. First, using the euro could serve as a convenient way of hedging against fluctuations of the exchange rate vis-à-vis the euro. Second, it could serve as an insurance against expected instabilities of the home country's institutions.

The Dollar in Eastern Europe

Before the launch of EMU, there was no currency of the dollar's weight available to agents in the CEECs. Trade with partners in EU member countries was carried out in different currencies, mostly in dollars or deutschmarks. It is thus hardly surprising that the predecessors of the euro, including the deutschmark, have not been able to meet the diffusion of the US dollar in most of the peripheral countries. Only in a few countries, notably in the Balkans, has the deutschmark been able to serve as a substitution currency, as anecdotal evidence suggests.

Due to the lack of data mentioned above, mere hints have to be relied upon when exploring the dollar's dominance in the CEECs. One of these hints is provided by Estonia, whose central bank is among the few monetary authorities worldwide that make figures on the composition of FCDs in the banking sector available to the public (cf. Figure 2).

[20] Korhonen considers the high degree of currency substitution in Lithuania to be caused chiefly by institutional weaknesses. Even though Lithuania introduced a currency board in 1994 to tie the currency to the US dollar, inflation remained high, resulting in a real appreciation that has caused a severe loss of competitiveness. This economic cost has diminished the political support for the currency board and has fuelled expectations for depreciation. This in turn led to a fast increase of dollarisation. See Iikka Korhonen: Dollarization in Lithuania, in: Review of Economies in Transition, 1996, 5, pp. 53-59.

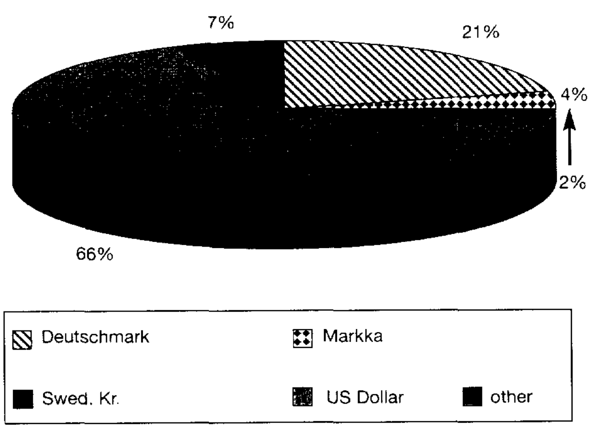
Even in Estonia the share of the US dollar reaches two-thirds, while the shares of the euro currencies deutschmark and Finnish markka add up to just 25 per cent.[21] This is all the more remarkable when taking into account that the Estonian krona has been linked to the deutschmark, now to the euro, by a currency board. Furthermore, the European Union is Estonia's most important trading partner by far, accounting for 49 per cent of exports and 59 per cent of imports (cf. Figure 1). If Estonians held euro deposits instead of dollar deposits, they would be able to eliminate the exchange rate risk vis-à-vis their most important trading partner – the EU. So the single European currency offers a clear advantage over the US one.

Current Drawbacks of the Euro

Despite the potential advantages of the euro apparently there has not yet been a reallocation of currency composition in the CEECs. The reasons for this are several drawbacks from which the euro still suffers.

☐ *No Cash.* So far national bills and coins still circulate in the member countries of the euro zone as 'non-metric denominations' of the new currency. Euro cash will not be issued before the turn of the year 2001/2002. For now the use of the euro for transaction purposes is clearly restricted, especially in countries with underdeveloped financial sectors where large shares of the money stock are held in cash. Deutschmarks, French francs, and the other member currencies may be history by now as independent national legal tenders, linked to the euro by irreversibly fixed conversion rates and a common exchange rate vis-à-vis third country currencies. But as a unit of account, as a monetary standard for transactions the euro will not be able to serve until there are common bills and coins. Put in the categories of the preceding paragraph: the euro still suffers from a lack of availability.

Figure 2
Composition of Estonian Foreign Currency Deposits



Source: Bank of Estonia, February 28, 1999.

☐ *Reputation of the ECB.* Resting on time-tested institutions is clearly an advantage for the dollar when competing with the euro for international supremacy. Being new institutions, the European Central Bank (ECB) and the ECOFIN council[22] are prone to speculation. They still have to establish a track record: they have to prove that they are willing to make the euro a stable currency in the long run. Naturally, it takes some time for this kind of credibility to be established.

☐ *Financial Markets.* Since the launch of EMU a single market for bonds, equity and derivatives is evolving. Over the medium term, a single yield curve is likely to emerge with deep, broad, and liquid spot and futures markets along the entire spectrum of maturities. How fast these developments are going to happen depends not only on economic agents' ability to learn and to adapt but also on government regulations.[23] Meanwhile as an investment currency and as a vehicle currency, the euro suffers from distinct drawbacks.

Medium-term Perspectives

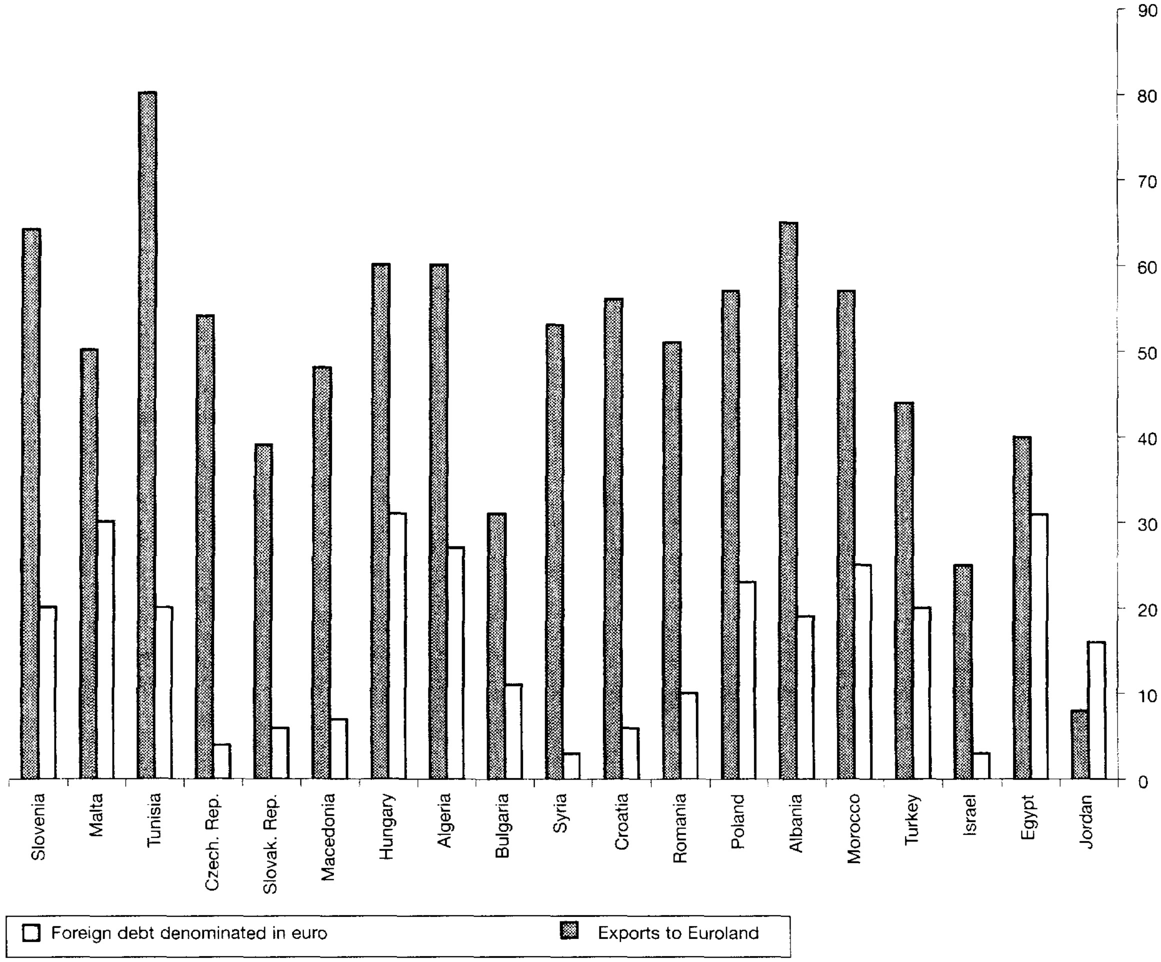
The main prerequisite of the euro's international success is its lasting internal stability. If inflation remains low in the long run, the euro is well equipped for competing with the dollar as a substitution currency. Another important factor is the development of liquid common financial markets making the euro attractive as an international investment and vehicle currency. Even though network externalities generally work in favour of the 'first mover' – in this case the

[21] Another demonstration of the dollar's supreme role as a substitution currency in Eastern Europe are counterfeited bills secured by Slovak authorities. From 1994 to 1996 each year 70 per cent of the secured counterfeited notes were dollar bills. See National Bank of the Slovak Republic, Annual Report 1997.

[22] The Council of Economics and Finance Ministers plays an important role since it is responsible for fiscal as well as exchange-rate policies.

[23] See Robert N. McCauley, William R. White: The Euro and European Financial Markets, Bank for International Settlements Working Paper No. 41 (1997), as well as Alessandro Prati, Garry J. Schinasi: European Monetary Union and Capital Markets: Structural Implications and Risks, International Monetary Fund Working Paper 1997, 62.

Figure 3
Mismatch in the Denomination of Trade and Foreign Debt



Note: Exports to Euroland as a percentage of total exports of the respective country; euro-denominated foreign debt as a percentage of the respective total foreign debt.

Source: IMF: World Economic Outlook, Washington D.C., September 1998.

dollar[24] – it can be expected that the new currency offers substantial advantages to the economies on the euro zone's periphery for several reasons:

☐ *Reduction of Exchange-rate Risks.* For the first time in recent history agents in peripheral countries are able to carry out the lion's share of their foreign transactions by using one single substitution currency. So far most of these countries experienced a mismatch: trade is performed mostly with the EU in euro, foreign debt and thus the debt service is denominated mostly in dollar (cf. Figure 3). One can expect the peripheral countries to dismantle this mismatch by trying to shift the currency composition of their foreign debt gradually towards the euro. Broader, more liquid capital markets in Euroland should offer the opportunity for this reallocation. If they are successful in establishing a greater congruency, they can lower the risk of increased volatility of the dollar-euro exchange rate. If private agents outside the two large currency areas held FCDs denominated in euros while having to serve foreign debts in dollars, a devaluation of the euro vis-à-vis the dollar would worsen their position: the value of their debt claims would diminish while their liabilities simultaneously rose. The smaller this mismatch the smaller is the risk of running into such difficulties. Presumably the mismatch is the major reason for the

[24] See Philipp Hartmann, op. cit.

– in contrast to Latin America – successful de-dollarisation in many CEECs. The advantages of the dollar over the home currencies have remained rather limited since in their trade it plays only a minor role. With altogether strong links with the US economy this mismatch does not exist in Latin America. For the CEECs there has not really been an alternative European currency to turn to. So agents returned to their home currencies after stability was re-established. Now for the first time the euro will offer the possibility of performing the entire range of money functions and can thus surpass the dollar's attractiveness as a substitution currency in these countries. Since the integration of the CEECs with EU member countries is likely to intensify in the near future, the CEECs may well experience a new wave of currency substitution – a euroisation.[25]

☐ *USA-EU Relations.* The more volatile the dollar-euro exchange rate turns out to be the harder private agents outside the euro zone will try to avoid the risks arising from the denomination mismatch. The degree of volatility of the bilateral exchange rate depends largely on the degree of international policy coordination. Transatlantic competition over the leading role in the international monetary system may lead to a market-driven convergence of monetary and fiscal policies. This in turn would support the notion of a smoother exchange-rate performance. Other scenarios point in the opposite direction: the USA-EU duopoly could be stuck in a situation in which both players engage in the fatal dynamics of competitive devaluations. Even though they can only expect temporary welfare gains – and severe long-term losses – the outcome would still be increasing exchange-rate volatility.[26]

☐ *Migration.* Significant East-West migration already takes place. Both legal and illegal foreign workers migrate to high-income EU member countries to make money – to make euros. In the course of further integration, migration from the CEECs, Turkey and the countries of the southern Mediterranean to EU member states is bound to increase further. One consequence of this process is the increasing availability of euros in the migrants' home countries. Table 1 shows the major home countries of legal foreign workers in Euroland.

☐ *Economic Policy.* Naturally, the extent of future currency substitution in the peripheral countries depends on the quality of economic policies in these countries. If inflation remains on levels substantially higher than inside the euro zone, agents will expect devaluations of peripheral currencies vis-à-vis the euro regularly. This should lead people in these countries to evade the corresponding risks by substituting the respective home currency for the euro. If, in contrast, governments and central banks work seriously to gain early EU membership, the criteria of the Maastricht treaty and the Stability and Growth Pact would exert monetary and budgetary discipline; inflation, exchange rates and budget deficits would approach Euroland standards. This in turn is likely to dampen the dynamics of currency substitution. Euroisation should thus be an important feature, particularly in economies that already experience high degrees of currency substitution and which cannot anticipate becoming EU members in the near future,

Table 1
Foreign Workers in Euroland

EMU member state	**Age**	**Home country of the largest groups from non-EU countries** (in brackets: share of workers with this nationality relative to all foreign workers in respective EMU member state)
Belgium	Up to age 25	Morocco (34%), Turkey (16%)
	Over age 25	Morocco (14%)
Austria	Up to age 25	Ex-Yugoslavia (44%), Turkey (35%), Romania (4%)
	Over age 25	Ex-Yugoslavia (42%), Turkey (19%)
Germany	Up to age 25	Turkey (45%), Ex-Yugoslavia (15%)
	Over age 25	Turkey (28%), Ex-Yugoslavia (16%)
Spain	Up to age 25	Morocco (21%), Argentina (7%)
	Over age 25	Morocco (15%)
Finland	Up to age 25	Ex-USSR (47%), Vietnam (8%)
	Over age 25	Ex-USSR (48%), Africa (4%)
France	Up to age 25	Morocco (28%), Algeria (12%)
	Over age 25	Algeria (17%), Morocco (12%)
Ireland[1]	Up to age 25	USA (10%)
	Over age 25	USA (8%)
Italy	Up to age 25	Africa (excl. North-A.) (17%), Morocco (17%), Ex-Yugoslavia (10%)
	Over age 25	Morocco (14%), Africa (excl. North-A.) 10%, Albania (8%)
Netherlands	Up to age 25	Turkey (30%), Morocco (25%)
	Over age 25	Turkey (20%), Morocco (13%)
Portugal[1]	Up to age 25	Brazil (26%)
	Over age 25	Brazil (27%)

[1] Countries that host a large share of foreign workers from other EU member states.

Source: Melanie Kiehl, Heinz Werner: Die Arbeitsmarktsituation von EU-Bürgern und Angehörigen von Drittstaaten in der EU, Institut für Arbeitsmarkt- und Berufsforschung, Werkstattbericht Nr. 7, July 30, 1998.

[25] The International Monetary Fund expects such a process – within certain limits – even for the highly developed countries. See International Monetay Fund: Annual Report 1998, Washington D.C., p. 46.

[26] See C. Fred Bergsten: The Dollar and the Euro, in: Foreign Affairs, 1997, Volume 76, 4, pp. 83-95; Henrik Müller: Großmacht Euro, Sprengsatz für die Weltwirtschaft?, Bonn 1999.

such as Romania, Bulgaria, former Yugoslavia, Lithuania and the countries of the Commonwealth of Independent States (CIS).

□ *Higher Quality of Bills.* A clear advantage of the euro over the dollar is the quality of the upcoming cash. Euro bills are supposed to be equipped with state of the art security features. Therefore, using euro cash implies a smaller risk of accidentally accepting counterfeited bills. Also the greater value of large euro bills should contribute to the popularity of the euro as a substitution currency; there will be 200 and 500 euro bills as compared to 100 dollar bills. Especially economies with a weak financial sectors where cash amounts to a large share of the money stock should be able to benefit from lower transaction costs due to higher value euro bills.[27]

Risks Resulting from Currency Substitution

Should governments of countries with high rates of currency substitution fight this development? For many this has become a crucial question. It should be recognised though that in principle dollarisation – the voluntary replacement of bad home money by better foreign money – is welfare-enhancing from an efficiency point of view. On the other hand, with high degrees of currency substitution certain risks arise that governments and central banks have to deal with.

□ *Loss of Control over Monetary Policy.* Central banks in highly dollarised or euroised economies lose control over the money supply since they are able to control the home component but not the foreign currency component. Furthermore, abrupt and large fluctuations in the money demand can be expected, the closer substitutes the home currency and the substitution currency are. Because of these technical difficulties central banks of highly dollarised economies targeting some definition of the money stock (for example M3) frequently find it difficult to bring inflation down.[28]

□ *High Exchange-rate Volatility.* Due to large shifts from home currency to substitution currency assets in private portfolios, erratic fluctuations of the exchange rate can occur, this particularly being the case in narrow, illiquid financial markets where even small transactions influence prices. High volatility of the exchange rate is potentially damaging to real economic activity since trade and capital flows are subject to additional risks.

□ *Instability of the Banking System.* A high degree of currency substitution can cause a banking crisis. In the case of a depreciation of the home currency, the value of foreign currency deposits rises relative to that of home currency deposits. FCDs represent liabilities of the banks vis-à-vis their customers. Thus depreciations can cause a chain reaction of banks crashing, potentially weakening the entire financial sector.[29] Additionally, dollarisation limits the central bank's function as lender of last resort: in a situation with no currency substitution the central bank can print home currency to bail out domestic banks. With currency substitution it needs foreign currency reserves, which are of course limited.

Policy Conclusions for Euroised Economies

Even though currency substitution causes risks, governments and central banks should refrain from repressing currency substitution. The experiences of countries such as Brazil show that strict regulation of the use of foreign currency leads to further evasion of the home currency, particularly to capital flight, and to an increased use of cash. Instead governments and central banks should adapt to currency substitution and formulate their policies accordingly. At the most they can hope to fight dollarisation/euroisation by addressing its causes.

Monetary Policy. Central banks in economies with high degrees of currency substitution should put the exchange rate at the centre of their monetary strategy. There are various reasons for this proposition. First, under the conditions of currency substitution monetary aggregates are subject to large fluctuations, preventing them from being suitable intermediate targets for monetary policy. This leaves the exchange rate as an alternative target. Second, in narrow, poorly developed financial markets a freely floating exchange rate is bound to be highly volatile, inducing substantial economic cost, e.g. banking crises. Third, a central bank that ties its currency to a respected international currency can hope to gain credibility. This may lower risk premiums. Lower and stable interest rates offer a favourable environment for investment and economic growth.

An important question is how a peg can be managed credibly. Rudi Dornbusch proposes that less developed countries should give up their sovereignty

[27] See Theodore E. Allison, op. cit.

[28] Van Aarle and Budina find a large impact of currency substitution on money demand in CEECs. Exceptions are the Czech and the Slovak Republics. See Bas van Aarle, Nina Budina: Currency Substitution in Eastern Europe, Discussion Paper 1995,02, Center for Economic Research, Tilburg University.

[29] See Markus Diehl: Dollarisierung im Transformationsprozeß, in: Die Weltwirtschaft 1995, pp. 471-486.

for good by turning to currency board systems. According to Dornbusch, Latin American countries should bind themselves to the US dollar while the countries on the EU periphery including Russia, Turkey and North Africa should turn to the euro. Dornbusch argues that high international capital mobility does not leave much scope for national monetary policies anyway. So there is nothing to lose, but plenty to gain: macroeconomic stability, reduced cost of capital and improved chances for early EU membership.[30]

This should be the right advice particularly for highly dollarised/euroised economies. Introducing a currency board is the logical political consequence. Countries with rather weak institutions should enjoy the greatest gains. But to stabilise a currency board, an overall policy commitment is inevitable: degrading the national central bank is not enough; the government, firms, unions and individuals must be prepared to submit the entire policy mix to the exchange-rate target, that is to the monetary policy of a foreign central bank, the Fed or the ECB.[31] So far, most countries on the EMU periphery have refrained from taking this step (cf. Table 2).

The reason for the shyness about using the euro as an anchor is the mismatch mentioned above (cf. Figure 3). Pegging a national currency to the euro would mean following all the fluctuations of the dollar-euro rate, which may possibly result in sharp increases in foreign debt (in case of a depreciation of the euro) or deteriorating competitiveness (in case of an appreciation). Many central banks try to dampen these fluctuations by pegging the exchange rates to a currency basket. Up to now, merely very small economies that have suffered from currency crises in the recent past (Bulgaria, Estonia, Lithuania, Bosnia-Herzegovina) have installed currency boards as an ultimate step to regain credibility. Other countries can be expected to follow when they have been able to restructure their foreign debt so that a larger share of their outstanding bonds is denominated in euro, this way limiting the risk resulting from the denomination mismatch.

An exception are countries whose major export commodities are raw materials such as oil (e.g. Iran, Saudi Arabia, Russia). Trade in these goods is invoiced in dollars. This is unlikely to change in the foreseeable future.[32] For these countries, abandoning the dollar peg would be risky.

Deregulating Financial Markets. One of the keys to an effective anti-substitution strategy is financial market reform. As noted above real interest rate differentials play an important role. Regulations designed to prevent interest rates from rising above a certain ceiling should be abandoned. Instead, policies should aim at enhancing financial market efficiency and liquidity. This will diminish the need to hoard foreign currency for foreign transaction purposes.

Table 2
Exchange Rate Arrangements on the Periphery of EMU

Country	Regime	Monetary anchor
Albania	Free Float	–
Bosnia-Herzegovina	Currency Board	Euro[1]
Bulgaria	Currency Board	Euro[1]
Croatia	Managed Float	Euro[1]
Czech Republic	Managed Float	–
Estonia	Currency Board	Euro[1]
Hungary	Crawling Peg	70% Euro[1] / 30% US dollar
Latvia	Peg	Special Drawing Rights
Lithuania	Currency Board	US dollar
Macedonia	Managed Float	De facto pegged to Euro[1]
Poland	Crawling Peg	45% US dollar / 40% Euro[2] / 10% Sterling / 5% S. francs
Romania	Free Float	–
Slovak Republic	Peg	60% Euro[1] / 40% US dollar
Slovenia	Managed Float	De facto pegged to Euro[1]
Cyprus	Peg	Euro[3]
Israel	Crawling Peg	54% US dollar / 32% Euro[4] / 8% Sterling / 7% Yen
Malta	Peg	67% Euro[3] / 21% US dollar / 12% Sterling
Turkey	Managed Float	US dollar
Algeria	Managed Float	US dollar
Iran	Peg	US dollar
Jordan	Peg	US dollar
Lebanon	Managed Float	US dollar
Morocco	Peg	Currency basket
Saudi Arabia	Peg	US dollar
Syria	Peg	US dollar
Tunisia	Managed Float	Currency basket
Lomé Countries	Peg	Euro[5]

[1] Deutschmark until 1999. [2] Until 1999 35% deutschmark, 5% F. francs. [3] ECU until 1999. [4] Until 1999 26% deutschmark, 6% F. francs. [5] F. francs until 1999.

Source: International Monetary Fund: World Economic Outlook, Washington D.C., September 1998.

[30] See Rudi Dornbusch: The Euro: Implications for Latin America, paper prepared for the World Bank, Cambridge, 16 March 1999.

[31] Enoch and Gulde offer a discussion on the pros and cons of currency boards. See Charles Enoch, Anne-Marie Gulde: Are Currency Boards a Cure for All Monetary Problems?, in: Finance & Development, December 1998, Volume 35, Number 4.

[32] See Philipp Hartmann, op. cit.

Besides, stringent banking supervision is needed to prevent banking crises.[33]

Fiscal Policy. Countries with weak institutions often fail to collect the tax revenues needed to finance government spending. They thus try to generate revenue by creating currency: by simply printing money. Under the conditions of currency substitution the resulting inflation tax ('seigniorage') can no longer be levied.[34] In the extreme case when no citizen is willing to hold home currency, inflation tax revenues decline to zero. Governments also lose the ability to force citizens to buy government bonds and alleviate this debt by increasing inflation later on.

Therefore, establishing an efficient and effective tax system is an important precondition for any currency substitution strategy. Otherwise public sector finances will lack a sound and sustainable basis. To stabilise the home currency credibly, the central bank should be forbidden to grant the government credit. Budget deficits and accumulated public debts must be of tolerable size in the long run in order not to undermine institutional credibility and fuel inflationary expectations. EU candidates have to follow this route in any case, if they wish to meet the Maastricht criteria in the foreseeable future.

Policy Conclusions for Euroland

The ECB and the governments of Euroland will not be able to prevent private agents in other countries from using the single currency, for this could only be achieved by strictly controlling the export of euro cash. The more successful the single currency, the more popular it will be outside EMU countries, the implications being quite pleasant: as a result, EMU finance ministers will gain windfall profits of considerable size. Extra seigniorage revenues worth US dollar 12 to 15 billion are added to the federal budget of the US each year. In the future, EMU countries should be able to secure part of this sum. The euro could become an important European export commodity.

Problems for monetary policy that could in theory result from large inflows and outflows of euros will probably remain negligible. Such instabilities in money demand would present an obstacle to the ECB's monetary targeting.[35] But as long as euro bills circulate abroad and stay there, euroisation will not present a problem to the ECB, because this money does not add to Euroland's money supply. The experience of the Bundesbank shows that deutschmark circulation abroad has been stable in the long run. Abrupt changes in the monetary aggregate M3 have not been observed.[36] In the ECB's definition of M3, cash has a low weight of 7 per cent. So even large swings in currency demand would have only little effect on M3. It follows that cash outside the euro zone is likely to be irrelevant for the conduct of monetary policy.

Furthermore the ECB does not include bank deposits of non-EMU residents in M3. So even large inflows and outflows of 'hot money' would not disturb the central bank's compass M3. There is only one case in which the ECB could run into trouble: if large non-resident bank deposits fuelled the demand for goods and services in Euroland, this would potentially cause inflationary pressures. Worse, these developments would not even show up in the monetary indicator M3. Were the ECB to trust M3 only, it would underestimate the actual growth of the money supply and the corresponding inflationary tendencies. But this risk is small: such dramatic swings in real demand are not likely to happen unnoticed. An example for such a situation are large inflows of immigrants driven out of their home country by acute political crises.

Résumé

Once the new cash is issued in 2002 the euro will have the chance to become an internationally popular substitution currency. Prime candidates for such a 'euroisation' are the countries on the EMU periphery, in central and eastern Europe and the Mediterranean region. It is well possible that the popularity of the euro will drive up the degree of currency substitution in these countries. To the authorities in Euroland this should not present a problem. On the contrary, euroisation promises EMU finance ministers additional revenues and will probably be warmly welcomed.

Governments and central banks in the euroised economies should not consider this process a threat but a challenge. Dollarisation and euroisation put national policies under competitive pressure that can be quite healthy. Especially, governments can no longer hope to finance budget deficits the unsound way, by printing money. Currency substitution forces governments to follow sustainable monetary and fiscal policies.

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[33] See International Monetary Fund: Annual Report 1998, p. 47.

[34] See Heng-Fu Zou: Dollarization and Inflation in a Two-Country Optimization Model, in: Journal of International Money and Finance, Vol. 12 (1993), No. 2, pp. 209-222.

[35] See European Central Bank: Euro area monetary aggregates and their role in the Eurosystem's monetary policy strategy, in: Monetary Bulletin, February 1999, pp. 29 ff.

[36] See Deutsche Bundesbank, op. cit.